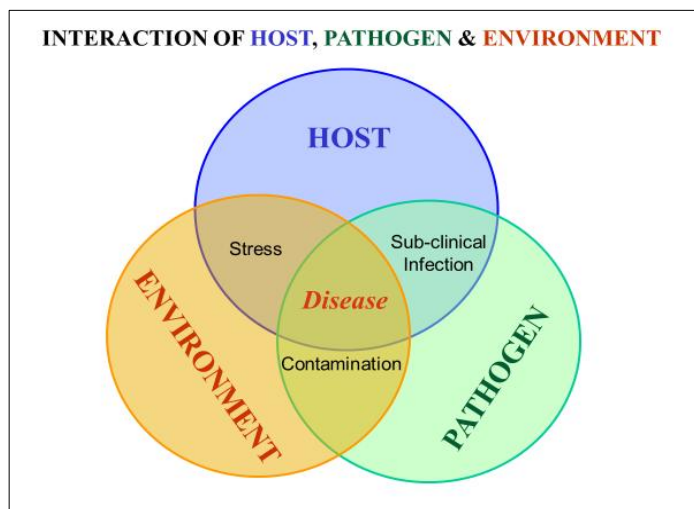


Biosecurity: Protecting The Poultry from Diseases

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Indian poultry sector is an important component of the livestock and agriculture economy of India and contributed about 4.99 MMT of chicken meat (5th largest in the world) and 138.38 billion eggs (2nd position in the world) to the food basket of the country during 2022-23. The growth rate of egg and meat production was always more than 6% in recent past. The poultry sector added about Rs 2.3 lakh crores to the national economy in 2022-23 and IMARC Group has projected to reach this number to Rs. 3.47 lakh crore by 2028 with impressive growth rate (CAGR) of 10.18% during 2023-2028. Indian poultry sector can be broadly divided into two sub-sectors - a highly organized commercial sector and an unorganized traditional backyard sector. About 85% egg production and majority of chicken meat are coming from commercial production system. The productivity of commercial poultry is increased many folds in recent past to meet the country requirement and still miles to go to achieve the target of 180 eggs and about 11kg chicken meat per capita per year. Climate change is also putting environmental and managerial pressure along with production pressure on poultry. In this condition biosecurity plays an important role to keep the birds free from contamination and diseases. Disease prevention is a critically important part of poultry farming. This article deals with the different aspects of biosecurity to prevent the birds of diseases and economic losses of poultry farmers.

Biosecurity can be defined as a set of programmes and procedures that will prevent or limit the build-up and spread of harmful microorganisms

and pests in poultry houses, poultry farms and poultry production areas and the biosecurity programme as the implementation of procedures to inhibit the movement of infectious agents harmful to poultry into, within or out of a facility containing poultry susceptible to those agents. Infected birds can spread the disease-causing organisms by mouth, nose and cloaca, feather and skin debris, eggs, hatched embryos or biting insects. Infectious diseases result from the interaction of agent, host, and environment. By applying proper biosecurity measures farmers can stop the spread of the diseases in the farm.

Stages of Biosecurity: There are 3 stages of biosecurity:

Conceptual Biosecurity

- Location of poultry house- maintain proper distance from probable sources of infection and select proper topography and connectivity
- Keep distance between Grower cum brooder house and layer house
- Maintain proper density of poultry in the house
- Location of multi age farms should be different
- Maintain distance between water bodies and farm
- Maintain distance between internal sheds
- Never keep different species at same farm
- Waterfowls are silent carriers for Bird flu and ND, so keep them away
- Single age group
- All-in all-out system should be followed

Structural Biosecurity

- Fencing of farm
- Fencing of Poultry house
- Entry point- vehicle disinfection and restricted personal and visitors' movement
- Rodent -proof housing
- Concrete flooring for proper cleaning
- Separate feed, equipment storage area from live-birds

Operational Biosecurity

- Dry cleaning- flame gun, clear dust, etc
- Washing- Sprinkle caustic soda 1Kg @ 100sft, 3-4hr
- Disinfectant spray

- Fumigation Potassium permanganate -2kg
- Formalin 4l- 1000sft
- Water pipe lines- slime, bio-film, descaler with disinfectant

Disinfection at the farm

Generally, disinfection is done at the termination / liquidation of flock. All the organic materials / debris should be removed before spraying any disinfectant on the cleaned shed and its surroundings. Several disinfectant compounds are available and their dose is indicated on the label. During disease outbreak, certain disinfectants can also be sprayed in the shed premises and on the birds to minimize pathogen load and spread in the flock. This will also ensure fast recover of the flock from the disease. Certain disinfectants used in poultry production include chlorine, hypochloride, phenolic compounds, quaternary ammonium compounds, hydrogen peroxide, etc.

There are two types of disinfection process at the farm-

1. **Terminal disinfection:** this refers to the thorough disinfection after the source of infection has left relevant sites, and it should be ensured that the places and the items going through terminal disinfection should no longer have pathogens. It is used after lifting of birds, equipment cleaning, chick placement etc.
2. **Continuous disinfection:** in this process disinfection is practiced at regular interval at different parts of the farm like floor cleaning, water sanitation etc

Three "STOP" Biosecurity Plan

The objectives of biosecurity are to STOP the three aspects of infectious at poultry farm.

1. STOP entry of Infectious agents into the farm.
2. STOP buildup and spread of infectious agents within poultry operation.
3. STOP escape of infection agent off the farm

Some important points to be followed

- Isolation and quarantine of new birds: Isolation and quarantine of new birds/ birds sent outside is necessary in a separate place at least 21 days so that infectious agents which may be there in the birds may be detected before introduction of these birds with other flocks.

- Personnel hygiene: all workers and other person who are allowed to farm must follow personal hygiene measure it they should be free from any zoonotic diseases.
- Litter management: it is important source of pathogen so proper management of litter is critical factor. It should be managed to control fly and rodent control, use organic matter for composting the manure, avoid use of litter as direct manure and use larvicide/ insecticide on litter.
- Disposal of dead birds: Dead birds should be removed quickly and properly, to ensure no contact with other birds and disposed as quickly as possible.
- Feed safety: it should be ensured that the feed coming at farm should not be carrier of any diseases.
- Period of rest: there should be minimum 10 days gap between destocking and before arrival of new batch. During this period the poultry house should be fumigated and then disinfected with effective disinfectant.
- Rodent control is important aspect of biosecurity. Take the help of rodent controller present in villages for the purposes.
- Water quality supplied to the birds is also a factor of biosecurity. It should be free from any contamination.
- Avoiding stagnation of water in and around the farm premises, avoid any materials which is a breeding ground for insects. Insects control is important factor of biosecurity.
- Keep the surrounding clean and remove vegetation or grass.

Biosecurity, which literally means safety of birds from pathogen of biological in origin. By applying above measures poultry farmers can prevent the birds from many diseases which may lead to morbidity and mortality losses. Commercial poultry are very susceptible to many diseases compared to backyard poultry. Therefore, they require bio-secured area and condition to grow faster and produce more on minimum input. So, better and economical productivity of commercial birds should be given high level of biosecurity.
